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Combat Crew

Strategic Air Command

August 1984

Combat Crew

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ON OUR COVER

The pilot of SAC's TR-1 flies alone while gathering necessary intelligence for our nation. For more on the TR-1, see page 4.

SACRP 127 — 1 VO. XXXIV NO. 8 AUGUST 1984

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Ours Is an Honorable Profession

General Russell E Dougherty
Commander in Chief, SAC
August 1974 - July 1977

Editor's Note: *"Ours is an Honorable Profession" was first printed as a "CINCSAC Comment" in the May 1975 issue of Combat Crew. It said most of the things many of us felt about how one ought to behave as a member of the military profession. Moreover, it said them better than most of us could ever hope to.*

F. Scott Fitzgerald once remarked to Ernest Hemingway: "You know, the rich are different from you and me." Hemingway rejoined: "Yes. They have more money."

There is also a difference between the average citizen of the United States and the citizens who also serve our country as volunteer members of the uniformed military establishment. And the distinction is much more fundamental than the mere fact that we wear a distinguishing uniform while performing our duties — we are different because we have more obligations.

We are different as a matter of our Constitution and our statutory law. The Constitution of the United States specifically provides that the Congress shall make laws for the governing of the Armed Forces of this country. As Americans, we in the Air Force are, of course, subject to the laws generally applicable to U.S. citizens. But there are many additional laws and regulations (with the force and effect of law) to which we in uniform must adhere . . . we must comply with general regulations, orders, rules of conduct, management, and standards prescribed for the military. Many of these laws, regulations, and orders to which we must adhere establish far more prescribed standards of behavior and performance for military people than those governing our general civilian society. These higher standards of performance are both proper and necessary, because the requirements for the proper discharge of military missions and duties are more demanding and stringent than the standards of conduct for those not in the military service. In short, military people live and work in an environment which imposes unique obligations and standards upon the performance of its people. This concept of a separate military society, with its own special rules, has been validated by the U.S. Supreme Court.

As members of the United States Air Force, we are subject to different and increased obligations — and we are **expected** to be different from Mr. John Doe . . . or Ms. Jane Doe . . . in our dress, our appearance, our conduct, in the routine performance of our jobs, and in the sacrifices we may have to make because of our military duties and obligations. There is no aspect of our military service in which these differences are more pronounced than that associated with our combat crews — our missile, tanker, bomber, or reconnaissance crews.

You are, of course, familiar with the details of the special rules and regulations necessary to insure that you meet the requirements of your particular job and the conduct expected of Air Force personnel. The reasons for these more stringent rules and greater expectations are simple, valid, and compelling. We are sworn to defend this country against all of its enemies. We are equipped with billions of dollars worth of facilities and weapon systems — all provided from the public treasury. We have charge of the use of thousands of nuclear weapons with devastating potential. This country has an absolute right to expect — indeed, demand — that our stewardship of these public resources and sophisticated weapons be discharged with absolute responsibility and reliability. Our reliability must extend both ways: to do what we are required to do by established authority — and to do it well . . . and not do that which is not authorized.

The twin hallmarks of our military profession are **integrity** and **responsibility.** These are honorable characteristics and ours is an **honorable** profession. Integrity and responsibility must permeate all of our thoughts, words, and deeds. Our integrity must be absolute and unequivocal. There is no aspect of our Air Force duties that requires us to lie, cheat, steal, or resort to chicanery in order to be successful. Indeed, such despicable behavior is the very antithesis of the qualities essential to success in our military profession.

If we are to secure and maintain public trust in our reliability, we must be completely open, candid, and honest in our operations, staff work, relationships with others, and handling of government funds and materials. Nowhere are personal integrity and responsibility more important than in our combat crews . . . and we must never forget it!

Strict adherence to doctrine, procedures, and technical orders is essential to safe, effective operation and maintenance of our equipment. Failure to do so can degrade our operational capability, damage or destroy valuable equipment, and injure or kill precious people. If you think you know a **better** way to do things, you

(Con't on Pg. 12)

SOLUM VOLAMUS
"ALONE WE FLY"

Capt Todd P. Hubbard
U-2 and TR-1 Pilot

Looking at the western sky I was amazed to see how different the sunset appeared from 12 miles above the earth's surface. As the light faded, long strands of blue, red, and gold radiated either side of the sun forming a slender slightly bowed ribbon of rainbow light sandwiched between black sky and dark earth. Suddenly the sun disappeared into the dark horizon.

Miles below, the city of Las Vegas shone brilliantly against the dark desert floor. Far to the west, just as easily seen, the San Francisco Bay area clearly marked the coast. Slowly, as the sun's light faded, the moon's reflected light increased in intensity. Its brilliance and size, unobscured by smog and haze, made it appear much closer than usual.

With the moon so bright, finding homeplate was easy. Small dots of light, representing countless communities, stretched out in front of me clearly pointing the way home. My destination, the beacon just beyond the Sierras, came into sharper focus until the base itself was recognizable. Unfortunately, the flight was nearly over and preparation for descent was made. The beauty we see as pilots gives us great pleasure but we desire other rewards.

As pilots we all look for opportunities to exercise our skills and stretch our abilities in a variety of tasks. However, challenging opportunities are not often within our reach. Characteristically, our careers have taken hold of us instead of following a carefully planned and executed path. The needs of the Air Force have of necessity overpowered our immediate desires and, like a jealous mistress, have determined our every move. Yet in our highly competitive flying world there are opportunities which serve the needs of the Air Force and offer plenty of challenge for our energies. Your future as a U-2 or TR-1 pilot is such an opportunity.

In presenting this program to you, we will cover this assignment possibility by presenting the U-2 as a career, the personal commitment of the pilots, the application process and upgrade training.

Since assignment to the U-2 or TR-1 aircraft is voluntary, entrance into this program can be made most anywhere in your flying career. This career change carries with it its own progression through the rank structure so it need not be an interruption but a new beginning for future assignments. However, as this is a special duty assignment, selection is based on an interview process. Those chosen have excellent opportunities to serve the Air Force in worldwide capacities both as line pilots and operational mission managers.

In recent years the program requirements have been reviewed and changed and now allow younger pilots the opportunity to be involved. Their energies have been properly and thoroughly harnessed by a talented team of technicians from the 4029 Strategic Reconnaissance Training Squadron at Beale AFB, California. In recent years this squadron has developed into a veritable depository of information which is ably communicated by seasoned professional instructors. The goal has been and continues to be perfection. Mistakes of any kind are not tolerated in this extremely important aircraft. Therefore, each and every pilot feverishly strives for perfection. There are no secrets among U-2 and TR-1 pilots about their own performance. Each pilot attempts to learn as much as he can from others' experiences to insure successful mission accomplishment. The result is a high degree of price and self-esteem.

This pride in the mission and personal performance accenturates itself in the two operational squadrons, the 99th Strategic Reconnaissance Squadron at Beale AFB, California, and the 95th Reconnaissance Squadron at RAF Alconbury, United Kingdom. As an old pilot once said, "Many times you only have one look at what you're after so you've got to be right the first time." This attitude permeates the men who fly this "magnificent flying machine." U-2 pilots from Beale AFB spend approximately 135 days per year away from home flying a variety of missions. TR-1 pilots from Alconbury do not have a TDY commitment off station. Regardless of location, each pilot knows that each mission carries with it his name and reputation and the information he brings back will be briefed at the highest national command levels. Mission accomplishment is determined by everything his skill can provide during arduous hours in a pressure suit. Each and every day these missions are successfully and professionally completed. The rewards have always outweighed the hard work and personal sacrifice.

Now is the time to get involved in this dynamic career opportunity. The application process is very structured and straightforward. You may desire to call the U-2/TR-1 training section for preliminary information. Several questions will be asked regarding your professional and flying history and earliest assignment availability. However, you will be instructed by letter what paperwork is required for formal evaluation of your record. The results of this evaluation will determine whether or not you will be invited for an interview. If selected, you will proceed to Beale for a two week TDY for personal interviews with the 99SRW staff and the wing commander, followed by a flying evaluation in the U-2CT and a physical examination. As your selection draws closer, more information will become available; however, letters and telephone calls are encouraged.

Two important points must be understood. First, because this program is labeled "special duty," non-selection will have no bearing on your present or future assignments. Secondly, since much of the selection process decision making is resident at Beale, you will be notified immediately about selection results. That means you should know before you depart Beale whether or not you have been accepted into the program at the local level and if your name will be forwarded to 15AF and HQ SAC for final approval and assignment.

Some of you may be curious about the training program. All new pilots undergoing training first complete T-38 upgrade. Its use as a proficiency tool has proven to be priceless. Next, you will complete nearly a month of academic training before flying the U-2 and TR-1. Approximately four flights are required in the TR-1B two seat trainer before completing a low altitude evaluation. Mission qualification follows in single seat U-2Rs and TR-1As accomplishing a variety of missions of varying length in the pressure suit. The high altitude evaluation is normally given on your ninth mission which is followed by additional predeployment training. Completion of the training curriculum will come with successful mission certification.

***Entry Requirements**

Personnel:	Highly motivated captains and junior majors
Experience:	Diversification to include pilot in command experience in two or more types of military aircraft, particularly single engine/centerline thrust, is desirable but not mandatory

****Eligibility Criteria**

Professional:	Regular or reserved officer with less than 16 years TAFMS
Medical:	Qualified U-2 flight physical
Stature:	Not to exceed 39" sitting height/25½" buttock to knee length
Flying time:	1500 hours - total time 1000 hours must be jet **OR** 1350 hours - total time 1000 hours are first pilot or instructor pilot
Other:	18 months as pilot in command, eligible for Top Secret clearance

*U-2/TR-1 Pilot Selection Procedures letter
**AFR 36-20, Paragraph 8-20

Contact (4029th SRTS U-2/TR-1 Manning Major Davies or Captain Barlow autovon 368-2557 or 2237)

Although everyone is trained at Beale AFB, graduates of the training program go in one of two directions. Some pilots will depart PCS to RAF Alconbury while others will remain at Beale. However, all U-2 and TR-1 candidates will know which direction they are going prior to arrival at Beale.

Total time required to train in the T-38 and U-2 varies but will normally take six months. Pilots destined for Alconbury receive four months of training at Beale followed by additional training on arrival in the UK.

We have reviewed the unique opportunities offered by service in the U-2 and TR-1, the personal commitment of the pilots, the application process and upgrade training. This program is unlike any other in the Air Force and requires the best of both mind and body to accomplish a vital mission. We are looking for dedicated officers willing to press ahead and offer themselves for this nation's defense. Are you willing?

Heads Up — Eyes Out

Capt Mark McGeehan
379 BMW, Wurtsmith AFB

You're walking down a sidewalk on a busy city street. It's a sunny summer morning and a slight breeze is blowing. As you pass an expensive department store you are momentarily distracted by the passing of a member of the opposite sex. Craning your neck around to prolong the pleasureable view, you do not notice what is happening above you. The forementioned department store is receiving a shipment of Steinway Baby Grands, one of which has been winched five stories aloft to be taken through a window.

Suddenly the brake mechanism on the cable fails, allowing the beautiful steinway to gravitate earthward at 32 ft/sec^2. As the accelerating piano passes floor by floor in reverse order, you, on the sidewalk, finally notice a growing shadow form around you. Bug-eyed, you become immediately aware that barring fast action, your short morning stroll is about to be utterly ruined.

In the next instant your whole body begins to shake violently and . . . you feel a nasty bump on your head. The coffee table has a dent in it and you're sporting a rug burn on your face. "What a nightmare," you think to yourself, hands still shaking and skin clammy; must have been the chili burrito I had for lunch. "I gotta quit falling asleep on the couch after work," you murmur as you unwedge yourself from the small space on the living room floor between the coffee table and the sofa.

Now what does the above barrage of print have to do with flying B-52s? Hardly a thing. Hardly one particle of relationship or relevancy, except one. Think about the man in the dream; in one split moment his rhythm, his thought patterns, and actions were drastically interrupted by the sudden perils of his predicament. Caught completely off guard, his only chance for survival would have been fast evasive action. Now think for a moment about flying B-52s during low level. Many demands are placed upon you. You may sometime in the future find yourself in a predicament from which the only escape is immediate evasive action. The most glowing example of such a predicament is when another aircraft tries to occupy the same point in space at the same time that you are, resulting in a mid-air. Will you see it in time to take evasive action: hopefully! Did the man in the dream see the piano in time? We don't know, he woke up and fell off the couch.

"As the accelerating piano passes floor by floor in reverse order, you, on the sidewalk, finally notice a growing shadow form around you."

A near miss will definitely get your adrenalin flowing. But there are a few things you can do to keep most near misses from developing, thereby saving you adrenalin and maintaining a lower heart rate. I don't think I'll raise any arguments if I say the best way to avoid another rapidly closing airplane takes us back to the basics — and that is, SEE IT. In order to see it, of course, you have to be looking in its general direction outside the cockpit. The fuel or generator panels both have their interesting qualities, but these diminish about as rapidly as the other aircraft is approaching you. KEEP YOUR EYES OUT. As a B-52 copilot you spend a lot of time writing on a clipboard. Get all your recordings and documentation finished before you enter the low level route to minimize your writing during low level. Keep the window sill free from objects that would obscure your vision (maps, papers, clipboards, and etc.) When you map-read hold the chart up to just below your eyes (not to block your forward vision), instead of looking down to the map resting on your lap. Be constantly aware that on a nice clear VFR day you will not be the only one enjoying the good flying weather. General aviation activity increases drastically on these days. If you are on board as a safety observer, looking outside the aircraft will be your primary duty. You have to stay alert, monitor terrain and keep an eye out for other aircraft.

A good technique to scan the horizon is to focus on a distant point in one section of the window at a time then focus through another section of window. Use this stop and go method to view the entire horizon then repeat. Remember that an aircraft on a collision course with you will not move in the windscreen. This lack of relative motion makes it even more difficult for you to visually detect him so be aware and compensate with added vigilance. Also, the more you know about your route, the more prepared you can be. Where are the civilian airfields? The crossing VFR routes? The low altitude airways? The major highways and railroads (IFR = I Follow Roads/Rail-

roads)? Knowing where to look can definitely help you see a developing near miss.

Finally, in the event you experience a near miss and you decide you want to document and report the occurrence, there are a couple of important items to remember. First, if you are flying low level and in contact with the STR site, report it to them and ask them to relay the information to the nearest ARTCC or FSS, then after exiting low level and in contact with ARTCC or FSS, repeat the information to them. The information you should pass is as follows:

- Call sign
- Zulu time and place (nearest NAVAID/radial/DME or coordinates)
- Altitude or flight level
- Description of other aircraft
- Advise the controlling agency that an official report is being filed.)

Upon landing, the Hazardous Air Traffic Report, AF Form 651, will be filed within 24 hours at base operations or the safety office, IAW AFR 127-3. The form is self-explanatory and is contained in all our mission packages. One important note to remember about AFR 127-3 is that if you experience a near miss, a HATR **must** be filed.

In conclusion, remember that our basic see and avoid techniques are time tested and true. Also remember some of the tips that help you to see better and you won't have to worry so much about the avoiding part. That's what they all boil down to.

Keep yourself out of a situation that will require immediate evasive action for survival.

TITAN II Deactivation and Safety Overview

Maj David D. Chacey
381 SMW, McConnell AFB

THE TITAN II PROPELLANT VAPOR SCRUBBER SYSTEM

Separates propellant vapor from air prior to release to atmosphere. Shown here prior to operation.

Deactivation of the Titan II weapon system from Strategic Air Command's fleet of ICBMs (project "Rivet Cap") is one of the largest operations of its type ever undertaken by the command. The project comprises more missiles, propellants and equipment than any other program to date. From a safety and operational viewpoint the project is more complex than either the Atlas or Titan I programs, as the scope and project requirements are far greater. As an example, for the 52 missiles on alert at Davis-Monthan, McConnell and Little Rock AFB's at the beginning of the project, over 5000 tons of liquid oxidizer (nitrogen tetroxide, N_2O_4) must be downloaded from 104 missile propellant tanks. It must then be transferred from holding trailers to six or possibly seven semitrailer tankers for transport to receiving stations. The fuel (unsymmetrical dimethylhydrazine and hydrazine) must be downloaded in a similar manner and the 5.6 million pounds of fuel transported and saved for future space and missile operations. But the propellant downloads are only a small portion of the entire effort.

This article will introduce those unfamiliar with Titan II to the deactivation process. It will also give Minuteman and ex-Titan II personnel a brief view at some new or improved safety equipment now incorporated in the weapon system. We've discussed propellants, but let's backtrack and look at project "Rivet Cap" from a wider perspective.

Davis-Monthan AFB started deactivation of the Titan II fleet by presidential direction over 18 months ago and anticipates completion by July 1984. McConnell AFB, Kansas, will start deactivation of its 17 missiles in the near future and is scheduled for completion in two years. Little Rock AFB, Arkansas, is the third Titan II base and will begin deactivation in 1985. The three bases will deactivate all 52 missiles in a similar manner using identical technical orders, equipment and procedures.

Naturally, everything starts with schedules and flow charts. The schedule allots time for equipment transport, set up and operation; facility preparation and safety checks, ordnance and reentry vehicle removal; propellant transfers from both missile and holding trailers; and for missile and equipment removal. The site then enters a dismantaling operation. The site is environmentally safed, equipment is removed, identified and stored, and the complex is readied for destruction.

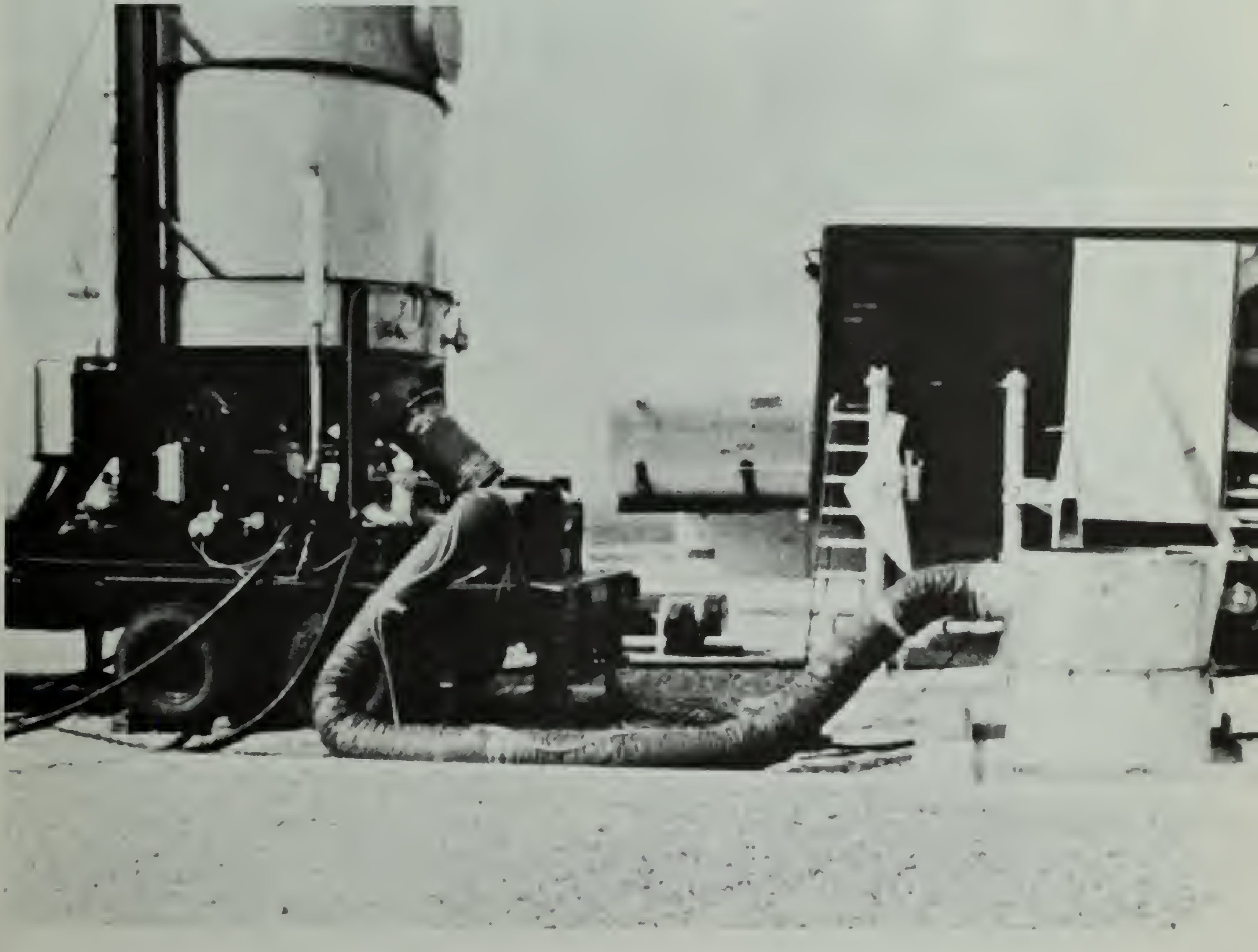
The first operation begins when propellant transfer trailers, equipment and spares are transported to the site and positioned. Connections are made to the fuel, oxidizer, and nitrogen systems and the systems are then tested and operated. When the Propellant Transfer System (PTS) equipment is ready, the site is removed from alert by removal of various ordnance devices.

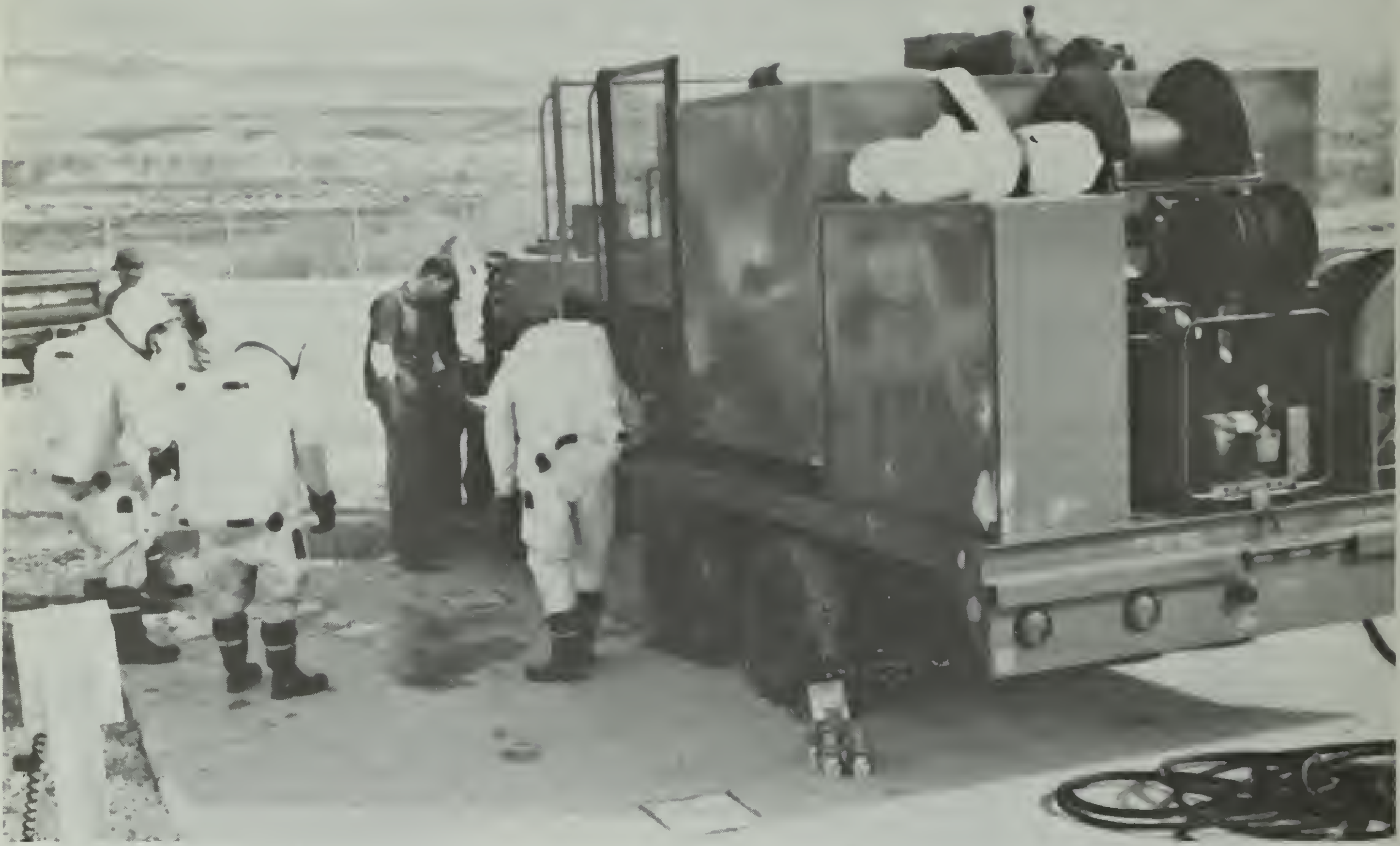
The next major operation begins with missile reentry vehicle removal. Weather permitting, PTS download tasks on the missile begin shortly thereafter. This operation lasts 14-16 days and comprises fuel and oxidizer missile tank downloads, missile tank purging, and propellant transfer to commercial trailers.

The third major operation is the removal of the missile. In this operation, additional equipment is removed as well. These tasks require at least 6-10 days. Shortly after this, the site becomes the responsibility of the base civil engineer under a caretaker arrangement.

Prior to dismantling, Command, Control and Communications (C3) gear is removed, including classified and critical equipment. Power supplies, batteries, and sensing equipment costing over one million dollars are also removed. Additionally, equipment which should not be reused is decontaminated and destroyed, and fluids and gases are removed from the numerous facility subsystems. Technicians will remove 10,000 gallons of diesel fuel, drain 350 gallons of hydraulic fluid, and pump out over 100,000 gallons of industrial water. PTS technicians will environmentally safe the fuel and oxidizer piping and cap numerous flanges and connections.

The system connects to the silo air exhaust shaft. Vapor is inducted by the flexible hose into the unit.





THE PORTABLE FOAM VAPOR SUPPRESSION SYSTEM:

Shown here being set up for operation.

The foamer is a trailer mounted, generator equipped system which delivers a water-based, vapor suppressing "soap bubble" foam on a fuel or oxidizer spill. It generates foam under low pressure which is capable of either spraying or dumping large amounts of foam quickly. Suppression gives us time to evacuate civilians, if necessary and repair the system. The foamer also helps with that chore. It uses pumps, hoses and bladders to remove the neutralized liquid. It stores the liquid in large "balloons" that can later be disposed of properly and safely. The foamer can be used anywhere, day or night, thanks to its design and associated equipment. With resupply, the unit could suppress any size spill for as long as needed.

The other new piece of equipment is the scrubber. This trailer-mounted device is used to clean propellant vapor from air leaving the silo exhaust shaft after a spill. It works by absorbing and neutralizing the vapor with water or sodium hydroxide in solution. During operation the scrubber in-takes the vapor and injects it into a large tank. This allows it to circulate upward through the solution. Both the solution and vapor/air are recirculated, providing a scrubbing effect on the air. The air leaving the top of the device is 98 percent pure.

The scrubber works in conjunction with a silo modification to decrease explosive/toxic levels in the silo. The modification to the silo allows constant recirculation of the silo spray water system. This lessens the possibility of explosive-level fuel vapor remaining in the silo after a spill. With the foamer, scrubber and silo modification, PTS teams have the capability to respond to any spill. Since the foamer and scrubber are always on site during propellant operations, the possibility of an uncontrollable situation is considerably lessened.

As of this writing Davis-Monthan AFB is within two complexes of completing project "Rivet Cap." McConnell AFB is ready to go and Little Rock AFB is deep in preparation. McConnell AFB has received its new or improved equipment and is getting experienced people from Davis-Monthan AFB periodically. McConnell and Little Rock Air Force Bases plan to continue the enviable safety record of Davis-Monthan. We'll have the benefit of their experience.

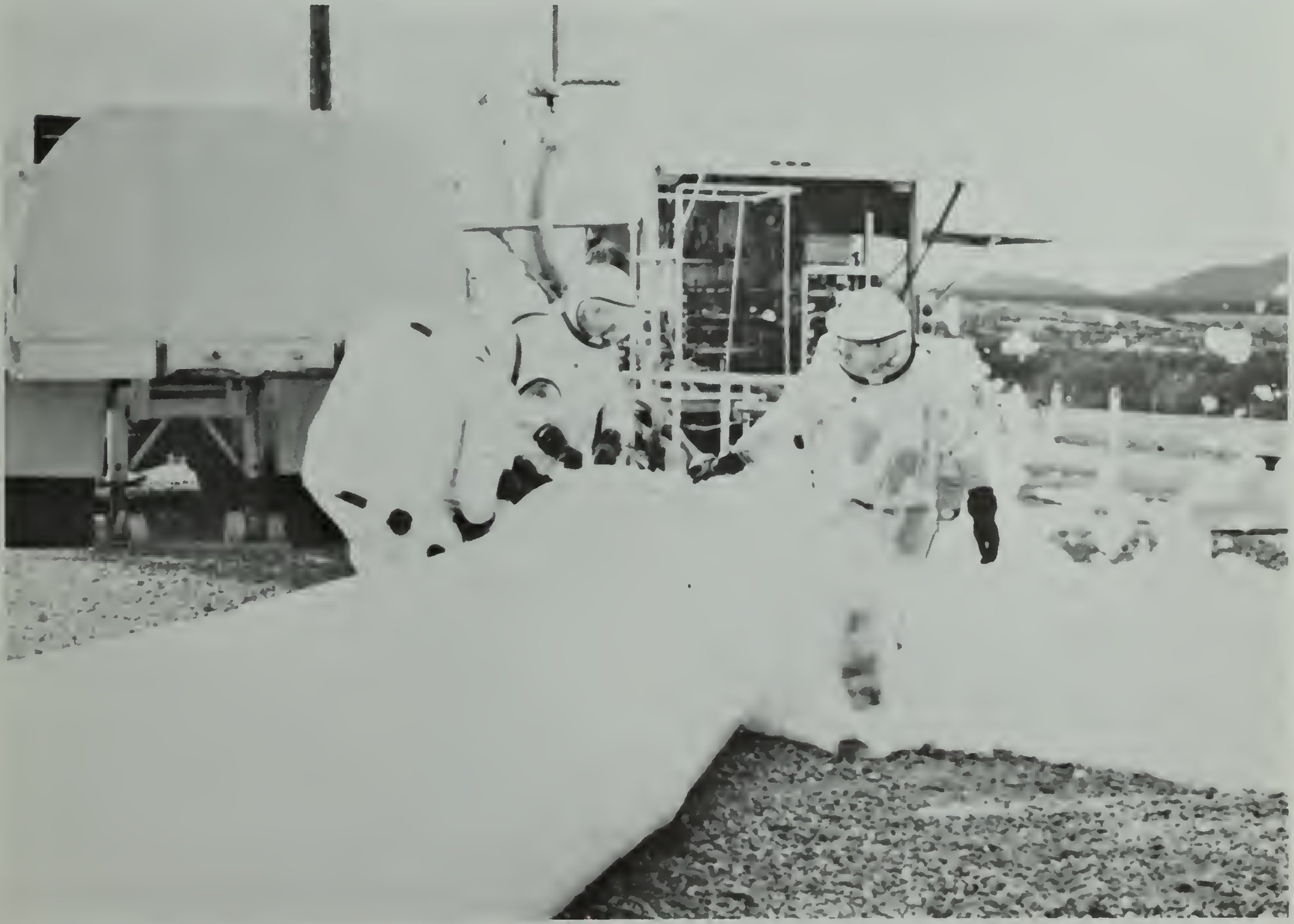
Titan II people want their weapon system to be remembered for its years of successful peacekeeping and for an outstanding record of accomplishment. In order to maintain this record, we must preserve our performance record but never at the expense of a safe, efficient operation.

Titan II has received some new equipment over the past few years that has upgraded our routine operations as well as improved our ability to respond to emergencies. We will discuss some of this equipment to give a general idea of how deactivation will be accomplished even safer than in our past operations.

The improved system is a combination of three equipment items. The first item is a radio, the Radio Type Maintenance Net (RTMN). It is a vast improvement over the old system and is much more reliable and easier to maintain. It is installed in the underground control center and topside PTS control trailer. It provides the team chief with radio override capability in the event of emergency. The RTMN attaches onto the second improved piece of equipment, the two hour Environmental Control Unit (ECU). The new ECU has twice the capacity of the old unit and is also more reliable. It gives the technician in the Rocket Fuel Handler's Clothing Outfit (RFHCO) more time to work and respond to unusual situations. The RFHCO "space suit" has also been improved with a new liner that makes detection of abrasions easier. The suit has also received a new vent guard which helps prevent intrusion of toxic vapor through the exhaust vent assemblies. McConnell AFB and Little Rock AFB will receive the improved suits as deactivation nears.

Titan II has received some completely new equipment to help with disaster and spill response as well as ensuring on site safety of personnel. The new pieces are the Portable Foam Vapor Suppression System and the Titan II Propellant Vapor Scrubber System; the "foamer" and "scrubber."

The foamer can supply large amounts of foam fast. RFHCO Suited technicians demonstrating operation of the system.



cont'd from page 3

OURS IS AN HONORABLE PROFESSION

owe it to your colleagues in the profession to share that knowledge. I urge you not to shortcut or circumvent the approved system on your own initiative. Rather, I urge you to apply your knowledge and your initiative to changing our procedures and doctrine through the established and proper channels. Our doctrine and procedures are dynamic, as are our regulations. They can and should be changed when circumstances change and we recognize a better way to do things. But until the rules we live by are changed, we must discipline ourselves to abide by the letter and spirit of our regulations. After all, our rules and standards are the product of careful deliberations — not malice or whimsy — to provide the best possible means to accomplish our ends. In our Command and in our Service, responsible and objective questioning is encouraged . . . but we cannot tolerate disobedience toward established authority.

Integrity and responsibility must also be hallmarks of our staff work. Honest, thorough, balanced staff work is essential to sound decision-making. The bad news must be told, as well as the good. There are those who use their staffing of an issue to "sell" their (or their boss's) preferred solution to the decision-maker, and "stack the deck" by slighting, obscuring, or even omitting alternatives or information worthy of consideration. The "best" solution should be able to stand on its own merits after competing fairly with its rivals. To win a rigged decision is not a success — it is chicanery. It is a waste of the decision-maker's time and talent, a disservice to the organization he represents and a failure of integrity and responsibility on the part of those perpetrating the fraud.

Compliance with our many rules and regulations concerning combat crew performance is often evidenced through documentation — "paperwork." These records are necessary — or we wouldn't have them. They serve a very useful purpose — if only to insure accomplishment and record the qualitative achievements of the action being documented. Unfortunately, from time to time there are a few among us who — through indifference, negligence, or just plain laziness — attest to performance that did not occur (or was only partially completed), rationalizing that no real harm has been done . . . "It's just bureaucratic paperwork." Even if there is "no harm done," integrity has been compromised. And any compromise of our integrity is harm, for it picks away at the threads of an individual's, or a command's moral fiber; it weakens our capacity to meet further challenges to integrity; and it destroys our credibility with the citizenry of the country we are sworn to defend.

Our rules and regulations are not meant to degrade or denigrate anyone. Nor are they designed to reduce everyone to conformity with the "least common denominator." Rather, they seek to lift up the performance of everyone to the highest standards of responsibility and effectiveness.

Do you measure **up**? Or, do you demean yourself by seeking escape and evade the discipline that distinguishes military professionals? Do you "give an honest day's work for a day's pay"? This, too, is ultimately a test of integrity. No matter how great or small your job, it is your responsibility to perform that job to the best of your ability all the time.

Our SAC people are our most valuable resource; also, people have fast become our most expensive resource. And, of all our SAC people, those of you in the combat crew force represent the most expensive. The ability to accomplish SAC's vital mission is inseparable from the dedicated, highly professional efforts of our personnel. We cannot turn our mission on and off like a faucet. Our readiness cannot run hot and cold. Our constancy of purpose requires persistence of effort. When we give less than our best, we are cheating on our responsibilities to the nation that is depending for its security on our faithful performance; depending on us to give the best of our ability, in conformity to the highest standards of professional excellence. No one in SAC is insignificant. Everyone in SAC is needed. But the man or woman who "eases off on the throttle" denies his service — and himself — the realization of his full potential. Like a muscle that isn't exercised, he becomes weak and, in time, cannot be counted on to pull a fair share of the Command load.

There are also a few misguided individuals among us who think the end justifies the means — that "the mission," "getting the job done," "it's only results that count" is all that matters — no matter how accomplished. These are the few who, in their zeal to win high marks for themselves or their unit's performance, cut corners or falsify reports in order to keep it "looking good." Loyalty to the unit and dedication to the mission are fine attributes expected of SAC personnel, but our readiness and capability to perform our vital mission must be based on demonstrated capability and upon unimpeachable facts . . . not on contrived documentation. Should the ultimate test be required of us, it will be true results that really count — not paper successes or papered over failures. This is why our Command has insisted on absolute integrity in the measurement of our achievements as well as our deficiencies. This is why SAC has put such emphasis on inspections, standboards, and competitive activity . . . to be sure that our capability is valid. This is why we have put such a premium on absolute integrity on the part both of the evaluator and the evaluatee.

Our mission and duty impose upon each of us heavy, individual burdens of responsibility and dependability. We are bound by solemn oath, lawful regulations, and public trust to fulfill these responsibilities without fail, and — if necessary — at the risk of our lives. Continuing to deserve and maintain the trust of those who rely upon us, and continuing to meet the extraordinary high standards demanded of us, depend — as they have always depended — upon our integrity and our responsibility. Ours **is** an honorable profession — because it **must** be . . . there is no other way. ★★★★

THERE I WAS . . .

There is an area of the United States where three ARTCCs meet — it lies between Colorado and New Mexico and right in the middle of our enroute rendezvous between three B-52s (the good guys) and one KC-135 (also the good guys).

We took off and were doing okay until one of the ARTCCs vectored the B-52s away from the rendezvous point. So, knowing that the actual, real-live spirit of the reg enroute/on course was dead, I set up to do a point parallel.

FATAL MISTAKE #1. I should never have set up at the rendezvous point to do that. Do it at the IP or CP. The rendezvous point is **not** actually on track.

While I was trying to organize a rendezvous between all four aircraft, I talked to a minimum of five people on the B-52s. Not once did they say who was running the rendezvous. Well, trying to be more cool than they were, I decided that I was going to run it but let them think that they were running it.

FATAL MISTAKE #2. I should have taken charge or demanded to know who was doing that . . . on both ends.

The gunners were talking on comm radios and guard because one of their radars dumped. The pilots of the B-52s were talking on comm radios about target airspeeds, headings, maneuvers and other information. The navs were talking about weapons, ETAs, and systems on comm radios. I was monitoring two UHFs, an HF, and guard, and boy was I confused.

FATAL MISTAKE #3. Before you talk on the radio during a critical phase of flight, ask yourself: Is not knowing this information going to kill me? If you need information, get it. If not, **STAY OFF THE RADIOS!** For those of you who aren't really involved during a rendezvous: YES, it is a critical phase of flight.

While talking to the voices, I asked them to say flight level. Initially, they said FL 390, which was where they were. Later, I asked them the same question.

"AR Base 280."

"Say flight level."

"AR flight level 280."

"Confirm you are at FL 280."

"Roger."

FATAL MISTAKE #4. If you are not where you need to be, don't lie. Don't say what you think the other guy wants to hear. When activities require a descent through your altitude, ask yourself: Where is he horizontally and vertically from me? Also, "Roger" does not mean affirmative. I almost got us killed due to that error.

We were west of where we should have been. They were east. We were 300′ higher than we were supposed to be. They were at FL 390 descending to FL 280 . . .

Before I continue, you know it turned out all right, but would you take a moment to reread the air refueling manual where it says, ". . . final turn will not be made until positive altitude separation is ascertained."

FATAL MISTAKE #5. Don't rush yourself. Hurrying-up-to-get-it-over-with-itis along with get-home-itis are killers. And don't be afraid to say, "Terminating rendezvous for safety of flight."

Lead went 500′ feet below us. Two crossed our nose at the same flight level. When camouflage becomes visible at night and you can see the numbers and you're 90° off each other's heading . . . you're close. Thank God three was out in the weeds, enabling two to pull up and avoid us. Otherwise we'd be statistics today.

About five minutes down track, when we recovered enough to start talking again, we asked lead what happened. He said he thought he could make it down in time.

FATAL MISTAKE #6. Don't conceal information. This information could have saved lives and prevented this whole incident. This information was what made center give the initial vectors that blew the rendezvous in the first place.

When we landed, we talked about calling the boss, but since it was late and the other guys weren't too concerned about it (the B-52 guys), we decided to ignore it. At 7:00 a.m. we were on the DO's carpet . . . something about "Why wasn't I told?"

CAREER MISTAKE #1, and **FATAL MISTAKE #7.** TELL PEOPLE. The boss wants to know about things like this. Other people may file this incident in their memories and not die as a result of a safety report or bar talk.

In the words of the DO, whom I respect as a wise man, "We learned a very valuable lesson very cheaply." If it happened to us, it can happen to you. If it happened once, it can happen again. Talk it up. Admit your mistakes. Save someone's life. You might even send it to **Combat Crew** . . .

A Night in the Woods

Lt Col Jon McLean
Chief, Battle Staff
2d Airborne Command
and Control Squadron

All of us who are or were on the SAC crew force have had survival training at one time or another. I remember that even as a brand new deputy missile combat crew commander at Grand Forks. I was scheduled for winter survival training in the winter of '68-'69. (I say "scheduled" because the class was cancelled — due to cold weather.) But how many of us have ever really believed that we would have occasion to use some of the good poop the LST folks put out for us?

Like most crew-bears/-dogs (take your pick; the former is — or maybe was — missileer talk; the latter, aircrew), I was interested in an academic, ex-Boy Scout sort of way about the survival training I've received. I even know somebody who got to use it for real (my cousin, a B-52 pilot whose bomber crashed in New Mexico in 1961, but that's another story). But deep down inside, I filed it way as "gee whiz" info which I'd most likely never need.

Oh wrong, pemmican-bar breath!

It all happened on Thanksgiving, 1979. I was deer hunting in Wisconsin with my dad at our cabin between Moose Junction (it's for real, folks) and Solon Springs. (For those with latent aeronautical tendencies, it's on about the DLH 158 for 29 DME. Take a look on an ONC sometime — you won't see much there.) A quiet, peaceful sort of day, far from the world of staff summaries, short suspenses, and an overflowing in-basket — in short, a most pleasant break from routine, even if there was a whole lot more deer **hunting** than deer **shooting** going on. It started reasonably enough, with an early breakfast and a short hike to my stand where I waited, semi-patiently, for a record buck (nuts, for ANY buck) to be foolish enough to walk into view. When he didn't oblige, I began my usual unproductive but most enjoyable pattern of moseying around the woods. Sometime around noon (and this would become important, at least psychologically, a bit later) I ate the only food I'd taken with me, a couple of Mom's terrific ginger cookies. As the day progressed, I ambled aimlessly — sort of like this article — over a fairly large piece of ground. Toward 1600 it struck me as a good idea to head back to camp, as dark falls quickly and early that far north in late November.

Let me digress a bit and explain the several classes of being lost. Class I is the worst: not knowing where you are, nor having the foggiest idea of how to get out of there. Class II lost is almost as bad: knowing where you are, but still not having a clue as to how to get where you want to be. Class III is really a piece of cake; it's knowing how to get from where you are — even though you don't really know where that is — to where it is you wish you were.

By 1600 I had developed and, fortunately, recognized a solid case of Class III lost.

As I said, it gets dark quickly at Moose Junction in late fall. I had two choices: go into what outdoor humorist Patrick McManus calls the "full-bore rectilinear panic" (that is, all mach and no heading), or admit that I was about to begin — thanks entirely to my own stupidity — what stood a darned good chance of being the longest night I would put in for quite some time. Picking the second option was the most difficult and, I say this with complete seriousness, most important single event of the whole episode. Once I forced myself to admit that I'd screwed up big time, everything else fell into place — thanks at least in part to those good people at Grand Forks, Ellsworth, and Offutt who tried to teach me a bit about survival.

I tried the old standby, three shots into the air. No response. So I built a fire (probably the first time in history I got one lit on the first match) and gathered enough wood to keep it going — the second most important decision of the evening. By 1730 or so I noticed that it was really dark — it certainly made me feel good about the fire. The weather was benign, about 30 degrees with intermittent light snow, so frostbite and hypothermia weren't big threats. (Hypothermia could have become a problem, though, without a fire and decent clothing, or with more precip, or if I'd gotten sweaty from pressing on at great speed.)

Do you have any idea how bored you can get, sitting by yourself under a cedar in the middle of Douglas County, Wisconsin on what proves to be the darkest night of the year? By 2000 I realized how little I knew about dark at 1730. By 2100 I got smart enough to stow my glasses in my jacket —it was too dark to see anything, and it helped my cap fit snugger and more comfortably around my face. By then I had also taken the round out of the chamber of my rifle; I wasn't about to be killed if by some weird accident it fell over and fired. I drank water from my canteen from time to time, which proved a mixed blessing. It was something to do, and it tasted good; I was thirsty from the cold, dry air. But since it was also chilled to ambient temperature, it chilled me when I drank it. So I compromised and sipped. Around 2300 I deeply regretted having eaten my last cookie at noon. All night long I kept scrounging wood to feed the fire, which was my only external source of heat but more importantly my only source of light. By midnight I had started singing to myself, which is the only circumstance in which I can sing without criticism. By 0100 I was mentally composing this article. At 0300 a brush wolf (AKA coyote) howled a quarter mile or so away. By 0500 the eastern sky began to hint, vaguely, if you looked anxiously enough, of dawn. By 0600, there was enough light for me to walk out. By 0730 I was eating breakfast in our cabin. By 0745 I was asleep. (I hadn't had more than a quick 40 winks the night before; the fire needed too much attention.)

"Toward 1600 it struck me as a good idea to head back to camp as dark falls quickly and early that far north in late November."

So what's the big deal, you ask? This doesn't read like a survival thriller in Outdoor Life.

That's exactly my point.

When your survival instructor tells you not to panic, believe him. First, there's probably nothing worth panicking about out there in the woods with you. Even if there is, panic won't help. More to the point, panic can injure or kill. In my case, for instance, running headlong — even in the right direction — could very easily have caused me to poke an eye out on a branch, or step in a pool in a swamp and freeze a foot, or break a leg tripping over a windfall.

Be prepared, mentally as much as physically. Have a plan, and make sure your partners understand it so they won't innocently try to guide you out of the woods in the dark. (This happened to another hunter in our area last year; the police sirens blared all night long. The hunter — a thirteen year old, no less — had the presence of mind to stand fast and wait for daylight. The temptation to head for the siren at full speed must have been nearly overwhelming.)

Don't let your concern for your partners overcome good judgement. I guarantee they'll be more concerned than you are; after all, you know you're safe, but they can only imagine. But don't press on to get back and ease their minds! Your continued safety and ultimate recovery are far more important than anyone's peace of mind.

Carry some essentials with you. After suitable clothing, a compass and matches are your best friends. Water helps, and food would be nice. I don't walk more than 100 yards from camp anymore without a good compact flashlight and spare batteries; with those along, I wouldn't have spent that night in the woods.

Most importantly, keep your wits about you. Recognize your predicament (if you, like me, are foolish enough to get into it) and then be tough enough to admit that you made a mistake and have to make the best of it. Admit it soon enough to do something useful. Be decisive! Don't play the "five more minutes" game; you'll lose.

There are many things worse than spending a boring night in the woods. One of them is spending an exciting night in the woods. Don't let a potential bar story turn into a real survival situation just because you weren't prepared.

Landing Illusions That Kill . . .

OR Don't Take the BRUNT of a short Landing

Maj Christopher Lingamfelter
Carswell AFB

Landing illusions have caused more than 50 jet transport aircraft to crash during the last 10 years. What happened in each one of these accidents? The pilot misinterpreted his visual cues, did not rely on his flight instruments, and landed (crashed) short of the runway. Even the best and most experienced pilots can be fooled by landing illusions. However, the smart pilot knows that he can be fooled by Mother Nature, knows what causes landing illusions, and knows when to anticipate landing illusions.

Of the many different landing illusions there are five which are frequently encountered and each one of these five is a potential killer:

- Bright lights
- Rain
- Upsloping runway
- Narrow runway
- Terrain

These are all conditions encountered during an approach which can cause visual illusions. All of these illusions are potentially dangerous because they give the illusion that you are higher than you actually are. The result could be catastrophic — a low, dragged-in approach, touching down short of the runway.

BRIGHT LIGHTS — Since the advent of commercial aviation, one out of five major aircraft accidents has occurred during night approaches over unlighted terrain or over water toward well lighted cities and airports. Boeing has made simulator tests using 12 highly experienced pilots under the above conditions, combined with an upsloping runway. Each one of these pilots descended to runway elevation while some four miles short of the runway. One pilot descended 2500 feet below field elevation! The intensity of runway and approach lights definitely affects a pilot's altitude judgment. Bright lights will make him appear higher than actual and the runway appear closer than actual. The result could be a low dragged-in approach and short landing.

Similar to this landing illusion is the illusion encountered during a low visibility approach when the pilot first sees the approach lights. The first sighting of a segment of the approach lights tends to lure the pilot into an unwitting and unwanted steep descent on short final.

As an FAA official pointed out, "When it is not possible to see the aiming point normally used under VFR conditions, the aiming point unconsciously becomes the far end of the visible segment. Since the aircraft naturally appears high, there may be an impulse to line the normal windshield reference point on the far end of the ground visual segment." If the pilot does this, he is inadvertently ducking under and flying a dangerously low, dragged-in approach.

Recently this phenomenon has been involved in a number of accidents. Typically, a descent rate of 1000 to 2000 feet per minute is established immediately after sighting approach lights and is maintained until just before the aircraft contacts trees or approach lights. At the moment of impact, the crew is usually attempting to execute an emergency pull up (ALPA, 1972).

RAIN — Moisture on the windshield interferes with visibility and may cause any type of "off glide slope" illusion. Light rays will refract (bend) as they pass through the layer of moisture on the windshield. Depending on the type of aircraft and pattern of ripples across the windshield, the refracted light may present either an above or below glide slope illusion. Boeing engineers say the aircraft altitude can be misjudged as much as 200 feet in error at one mile from the runway. This illusion could result in a touchdown of 3000 to 5000 feet short of the runway.

UPSLOPING RUNWAY — Another landing illusion that can cause a short landing is an upsloping runway. Aviators will appear to the above glide slope when actually on glide slope. The tendency is then to fly below glide slope to correct for the illusion. The following illustrations, taken from Boeing's **707 Pilot Training Manual,** describe this landing illusion.

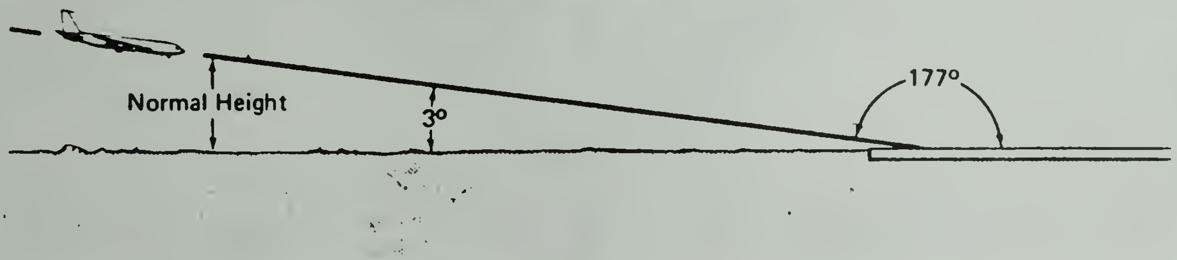
NARROW RUNWAY — Watch out for narrow, short runways. Expect to be lower and closer to the runway than you appear to be when approaching a short narrow runway. An aviator bases part of his judgment on a subconscious mental comparison of the runway to which he is accustomed. Most SAC pilots are accustomed to landing on a 12,000 feet by 300 feet runway. If, for some reason he should have to fly an approach into 6,000 feet by 150 feet airfield, the pilot will feel that he is high on glide slope and farther from the runway than actual. The pilot will attempt to make the "picture" look the same by dropping low on glide slope. The result could be a short landing.

TERRAIN (upsloping) — Another landing illusion to watch out for is upsloping terrain. This is the terrain which the pilot sees in front of the runway during the approach. The upsloping terrain is upsloping in relationship to the pilot flying the approach. The following illustration describes the "above glide slope" illusion caused by upsloping, approach terrain.

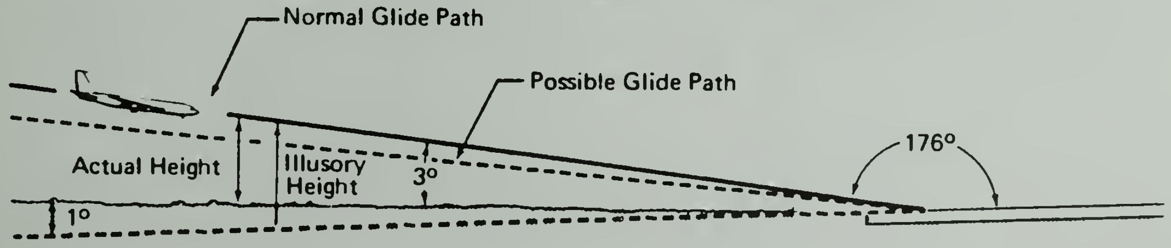
Don't take the "BRUNT" of a short landing. Remember:

B — bright lights
R — rain
U — upsloping runway
N — narrow runway
T — terrain (upsloping)

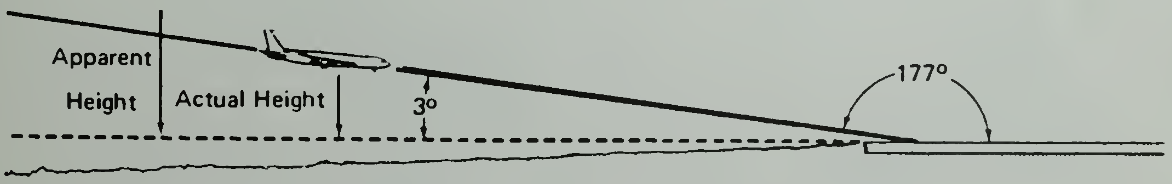
These are all landing illusions which are potentially dangerous. They make you think you are higher than you actually are. The results could be catastrophic — a low, dragged-in approach and a touchdown short of the runway.



Normal Approach Glide Path

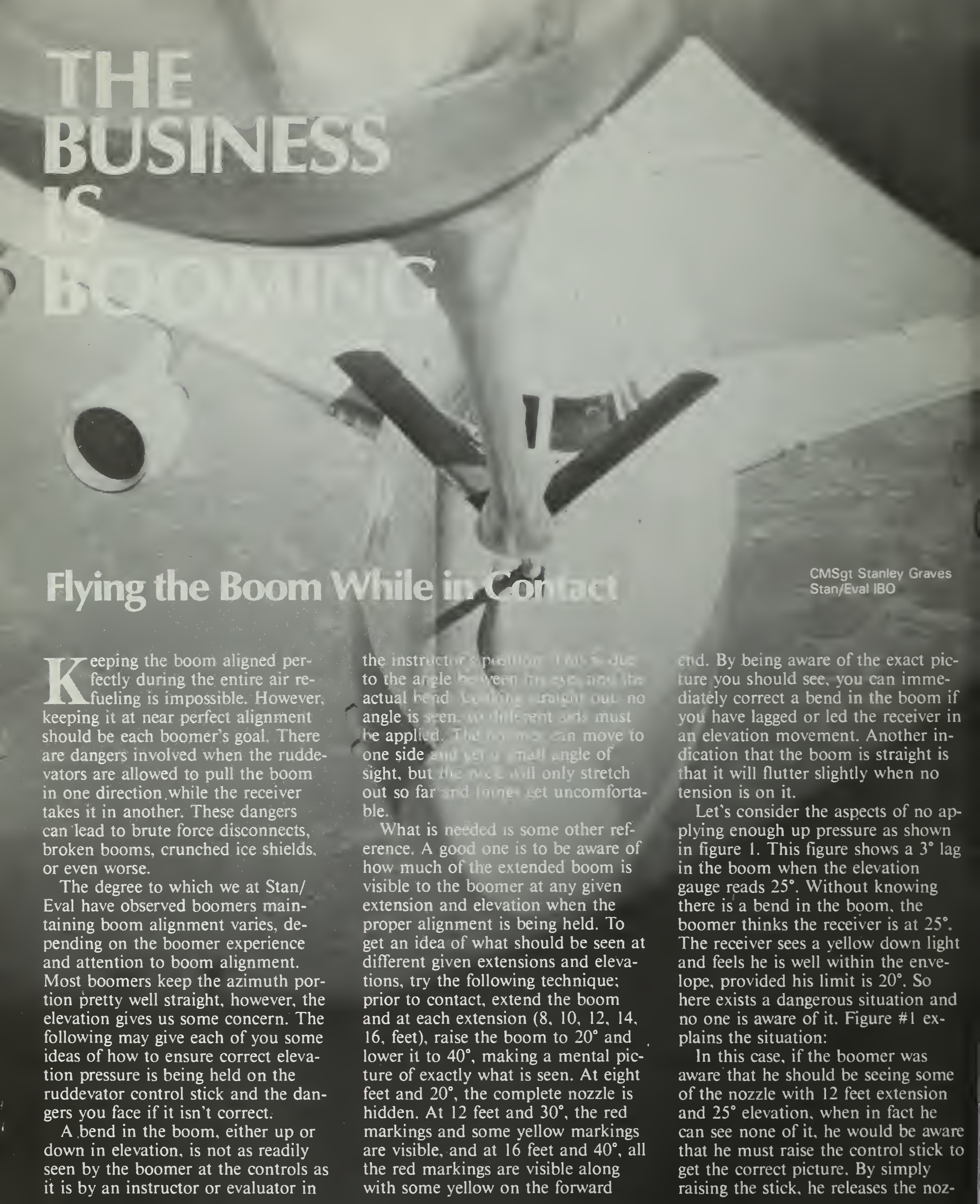


Illusion Of Steep Approach To Runway With A One Degree Upslope



Illusion Of Steep Approach To Runway With An Upslope In ThresholdTerrain.

THE BUSINESS IS BOOMING



Flying the Boom While in Contact

CMSgt Stanley Graves
Stan/Eval IBO

Keeping the boom aligned perfectly during the entire air refueling is impossible. However, keeping it at near perfect alignment should be each boomer's goal. There are dangers involved when the ruddevators are allowed to pull the boom in one direction while the receiver takes it in another. These dangers can lead to brute force disconnects, broken booms, crunched ice shields, or even worse.

The degree to which we at Stan/Eval have observed boomers maintaining boom alignment varies, depending on the boomer experience and attention to boom alignment. Most boomers keep the azimuth portion pretty well straight, however, the elevation gives us some concern. The following may give each of you some ideas of how to ensure correct elevation pressure is being held on the ruddevator control stick and the dangers you face if it isn't correct.

A bend in the boom, either up or down in elevation, is not as readily seen by the boomer at the controls as it is by an instructor or evaluator in the instructor's position. This is due to the angle between his eye and the actual bend. Looking straight out, no angle is seen, so different aids must be applied. The boomer can move to one side and get a small angle of sight, but the neck will only stretch out so far and longer get uncomfortable.

What is needed is some other reference. A good one is to be aware of how much of the extended boom is visible to the boomer at any given extension and elevation when the proper alignment is being held. To get an idea of what should be seen at different given extensions and elevations, try the following technique; prior to contact, extend the boom and at each extension (8, 10, 12, 14, 16, feet), raise the boom to 20° and lower it to 40°, making a mental picture of exactly what is seen. At eight feet and 20°, the complete nozzle is hidden. At 12 feet and 30°, the red markings and some yellow markings are visible, and at 16 feet and 40°, all the red markings are visible along with some yellow on the forward end. By being aware of the exact picture you should see, you can immediately correct a bend in the boom if you have lagged or led the receiver in an elevation movement. Another indication that the boom is straight is that it will flutter slightly when no tension is on it.

Let's consider the aspects of no applying enough up pressure as shown in figure 1. This figure shows a 3° lag in the boom when the elevation gauge reads 25°. Without knowing there is a bend in the boom, the boomer thinks the receiver is at 25°. The receiver sees a yellow down light and feels he is well within the envelope, provided his limit is 20°. So here exists a dangerous situation and no one is aware of it. Figure #1 explains the situation:

In this case, if the boomer was aware that he should be seeing some of the nozzle with 12 feet extension and 25° elevation, when in fact he can see none of it, he would be aware that he must raise the control stick to get the correct picture. By simply raising the stick, he releases the noz-

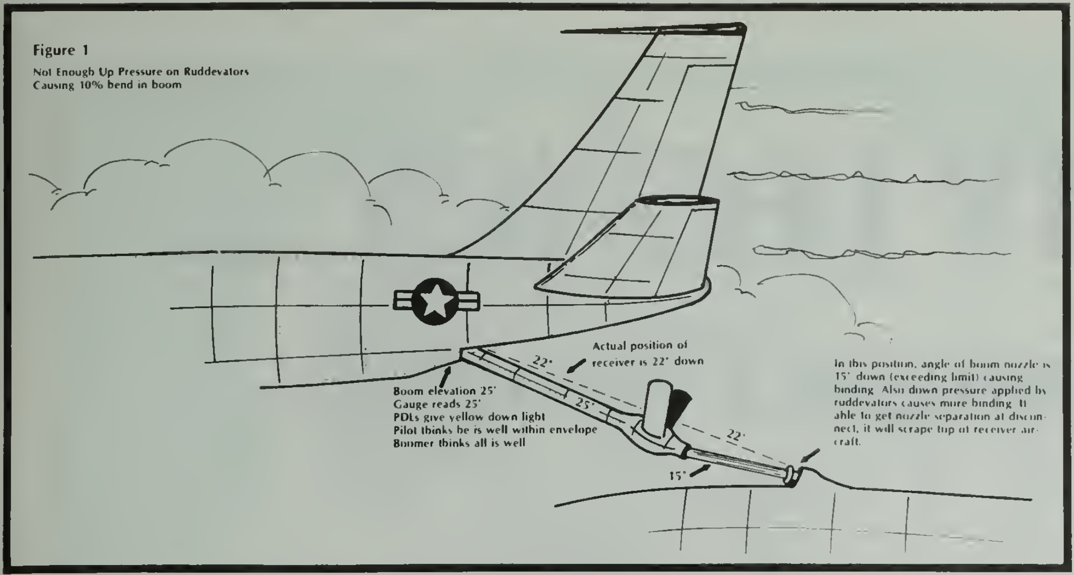


Figure 1
Not Enough Up Pressure on Ruddevators Causing 10% bend in boom

Actual position of receiver is 22° down
22°
25°
22°
15°
Boom elevation 25°
Gauge reads 25°
PDLs give yellow down light
Pilot thinks he is well within envelope
Boomer thinks all is well
In this position, angle of boom nozzle is 15° down (exceeding limit) causing binding. Also down pressure applied by ruddevators causes more binding. If able to get nozzle separation at disconnect, it will scrape top of receiver aircraft.

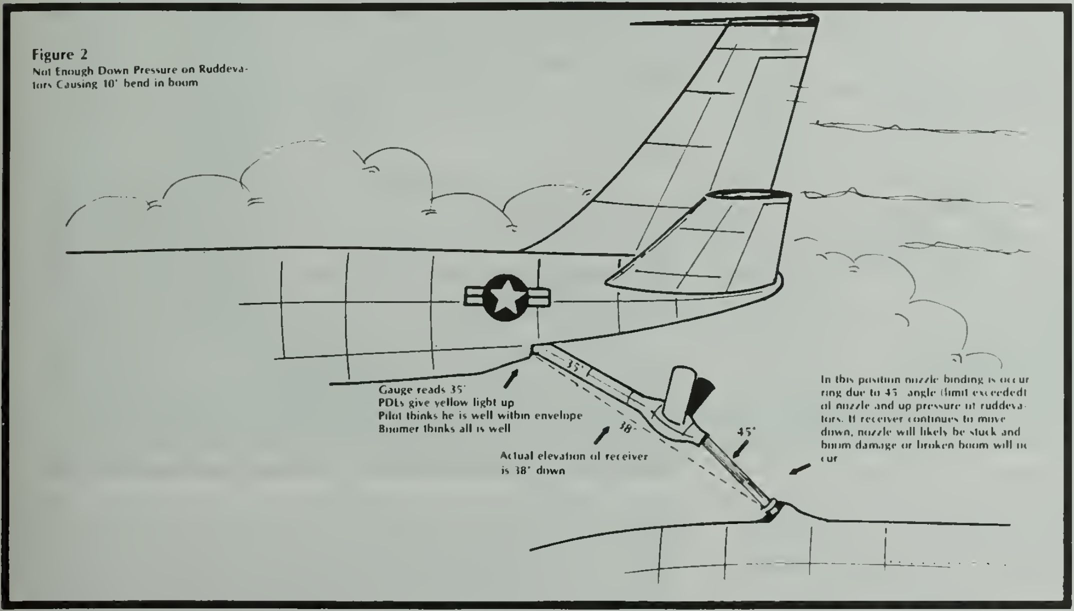


Figure 2
Not Enough Down Pressure on Ruddevators Causing 10° bend in boom

35°
38°
45°
Gauge reads 35°
PDLs give yellow light up
Pilot thinks he is well within envelope
Boomer thinks all is well
Actual elevation of receiver is 38° down
In this position nozzle binding is occurring due to 45° angle (limit exceeded) of nozzle and up pressure of ruddevators. If receiver continues to move down, nozzle will likely be stuck and boom damage or broken boom will occur

zle binding and moves the lights from yellow to red, giving the receiver pilot the correct indication to move down in the envelope.

Failure to know he is seeing the incorrect picture, he allows the bend to remain, causing the danger of a broken boom or a failure to free the nozzle upon a disconnect. This situation can cause damage to both airplanes and put the lives of both crews in danger.

Next, let's consider the aspects of not applying enough down pressure as shown in figure 2.

In this figure, the gauge reads 35° and the receiver is only seeing a yellow light on the PDIs. Without knowing the bend in the boom exists, everyone feels things are going just fine. The dangerous situation may result in a broken boom if the receiver drops any lower because the toggles probably would not separate from the receptacle. If the boomer knows he is seeing too much of the boom markings for 35° elevation, he can immediately push the stick down, releasing the nozzle binding and sending the PDIs to the red up light. Then if the receiver moves lower at this point, a clean disconnect can be effected.

An interesting point seen in figures 1 and 2 is that with a 3° lag in flying the boom, the angle at which the nozzle meets the receiver is increased by up to 10°. The actual angle of the nozzle depends on the amount of extension; the shorter the extension, the more the angle is changed by any given lag. The 10° bend in the boom with a 3° lag would occur when the receiver has approximately 10 feet extension.

As you can see, flying the boom while in contact is important. A lot of brute force disconnects and broken booms in the past could have been prevented with good boom operator procedures. Granted, the receiver pilot is the one who lets his aircraft get out of the envelope; but was he receiving the correct indication of the director lights? Whose fault was it? With good procedures, being aware of things that cause accidents and not letting an unsafe condition develop, you can prevent accidents and save an aircraft or a life.

MY LEGACY...

Hangar Flying

Col Donald MacLeod, Jr.
HQ 8 AF/SE

In March 1954, Class 54F was rapidly approaching graduation from Laredo and every young cadet was ready to enter the magnificent fighter pilot world. With only two weeks to go, we had orders in hand to report to Williams AFB, Arizona, for transition into the F-86 where every man was a tiger. Excitement was rampant until the entire class of fledgling pilots was assembled into the base theater where I was to hear words that would dramatically impact my flying career. "All orders have been cancelled and virtually everyone in Class 54F is being reassigned to B-47s in SAC with enroute B-29 transition at Randolph." You could hear a pin drop. That is the short of my fighter pilot career. And my 30 year long bomber career was about to begin!

After 30 years in B-52/KC-135 Operations and Safety, I have seen it all — and have done it all — the good and the bad. However, before I depart for the sunny beaches of Jacksonville, Florida, I want to pass on for your consideration what I believe to be the basic, tried and true, foundation of flying safety — "Hangar Flying."

Thirty years ago, when I joined SAC, virtually every flying squadron had highly experienced "old heads" and it was not uncommon to have several squadron pilots with 8 to 10,000 hours . . . 5,000 hour pilots were the norm. The experience pool was so extensive that until the early 60's, pilots entering B-52 flying programs had to have 2,000 hours total time prior to even being considered for copilot duties.

Looking back, it appears that we had unlimited flying hours and aircrews achieved their training and experience — while airborne. Every pilot, to include the entire staff, was current and qualified in a primary aircraft and the rated force dreamed, thought, spoke, lived — flying!

An invaluable by-product of this heyday of flying was the "Hangar Flying Session." Formal or informal, these sessions passed on lessons learned from mishaps (formerly called accidents/incidents), hazard reports, and close calls. Additionally, there was always someone willing to brief (confess) to his fellow pilots how, on a given flight, he had experienced an inflight emergency, took the wrong corrective actions — and almost created a more serious emergency. The audience could relate to many of the experiences heard because they too had almost done the wrong thing.

"With only two weeks to go, we had orders in hand to report to Williams AFB, Arizona, for transition into the F-86 where every man was a tiger."

A spinoff of Hangar Flying was the knowledge or quiz marathons which existed between the old and new heads. The old head would ask an obscure, nebulous question on an aircraft system knowing that few, if anyone, in the audience could answer. Favorites were system pressures, turbine speeds, flap jackscrew turns, length of the escape rope, etc. However, each question was thought provoking and made aircrews dig into flight handbooks or regulations for the answers. In turn, when the rookie was turning page after page looking for the answer, he couldn't avoid reading a myriad of Warnings, Cautions and Notes, thereby increasing his knowledge on totally unrelated subjects while also getting smarter on the aircraft system in question. Inevitably, he would also come across an equally obscure topic which he was confident that even the old heads didn't

know. He then couldn't wait to have his day in court to stump the old head. The process was then reversed — the old head was turning page after page after the professional (yet friendly) embarrassment from his 2,000 hour "kid" copilot.

Dependent on the squadron, the systems knowledge game could go to extremes, but the bottom line was that aircrews got to know the flight handbook, aircraft systems, normal and emergency procedures, flying regulations and training directives. What had started as a friendly game of one-upmanship among aircrews evolved into a viable training program to the mutual benefit of the old and new heads.

Times have changed dramatically. Flying experience levels are lower; flying hour costs have skyrocketed; simulators are used extensively; and accelerated, self-paced Instructional Systems Development (ISD) training doesn't teach detailed internal mechanisms and interrelationships of systems and subsystems. Additionally, now it is extremely rare to see aircrews hanging around the operations office or squadron lounge as they are either on alert, C^2, TDY, attending ground training, or at the simulator — while the remaining lucky few are flying.

However, in this era of compressed aircrew availability and limited flying hours, there are still innovative ways to keep Hangar Flying alive. First, the old heads have to take a personal interest in the younger crewmembers and take it upon themselves to continually question and quiz the rookies. Not to harass or to display superior knowledge, but to get the new heads into the books. Second, a crew can be designated Hangar Flying crew for an alert tour. Collectively they could purge the flight handbook or regulations and directives, then present questions to the rest of the alert force. Next tour have another crew designated. Before long, a competitive spirit is developed which permeates the entire squadron. Everyone is reading, questioning, and getting smarter!

We owe it to ourselves to insure that we, as well as everyone who flies with us, or on our wing, are ready to handle any given situation. Once an emergency situation develops, immediate critical action items must be taken and expanded knowledge of the system in question will greatly assist in successfully coping with the overall emergency, especially in situations of multiple malfunctions or failures. However, in depth knowledge of the obvious and not so obvious cannot be

cont'd on page 24

PROFESSIONAL PERFORMERS

Aircraft Maintenance

SSgt Jeffery M. Mazowiesky, 509th BMW, Pease AFB, is SAC Maintenance Airman of the Month. As an Aircraft Flightline Expediter, SSgt Mazowieski has been called upon on numerous occasions to render his expertise in repairing FB-111A aircraft cross country with mechanical difficulties. In each case these aircraft were expeditiously repaired with his supervision and returned to home station without incident. In addition to his demanding job, he supervises nine technicians, is an OJT trainer, performs technical inspections/personnel follow-up inspections, and accomplishes other tasks associated with being a seven skill level technician. Recently SSgt Mazowieski demonstrated exceptional daring and level headedness in his reaction to a flightline emergency. An aircraft was undergoing maintenance and had a hydraulic test stand connected to it for hydraulic pressure. Suddenly, the test stand caught fire. With highly flammable hydraulic fluid flowing from the test stand and the aircraft, SSgt Mazowieski went into action. While simultaneously notifying Maintenance Control and area personnel, he retrieved a fire extinguisher and put out the blaze. His fast thinking very possibly saved a valuable airframe and definitely precluded personal injury and damage to the hydraulic test stand.

Missile Maintenance

A1C Ricky L. Smith, 394 ICBM Test Maintenance Squadron, Vandenberg AFB, is SAC's ICBMS Maintenance Airman of the Month. Assigned to the Minuteman II Missile Maintenance Team Unit, A1C Smith is a dedicated airman who has established a reputation for maturity and self-reliance. Hard work and self study have allowed him to become fully task-qualified in the absolute minimum time necessary while maintaining a 98 percent average on his career development volume review tests.

A1C Smith is totally involved in providing support to all Minuteman II ICBM operational test and evaluation missions. His exceptional efforts drew praise from a Task Force Commander who singled out A1C Smith for providing "energetic and unhesitating" assistance. A1C Smith also provided crucial support to the 1983 SAC Missile Combat Competition as he helped establish time and performance standards against which all competitors were judged.

A1C Smith has personally inspected tools and equipment and helped prepare special purpose vehicles for inspection. The results were an "Outstanding" rating from a local inspection team, an "Excellent" from the SAC IG and an "Outstanding" rating during a 3901st SMES evaluation.

Flying Crew

Crew R-11, 28 BMW, Ellsworth AFB, is SAC's Flying Crew of the Month. Crew R-11 consists of: Capt Gary T. Rogers, P; 1Lt Alexis P. Kister, CP; Maj Terrance W. Bott, IP; Maj Gerald R. Bessette, RN; 1Lt Ronald D. Edwards, N; 1Lt Jack D. Shockley, EW; SSgt Roger A. Wooten, G.

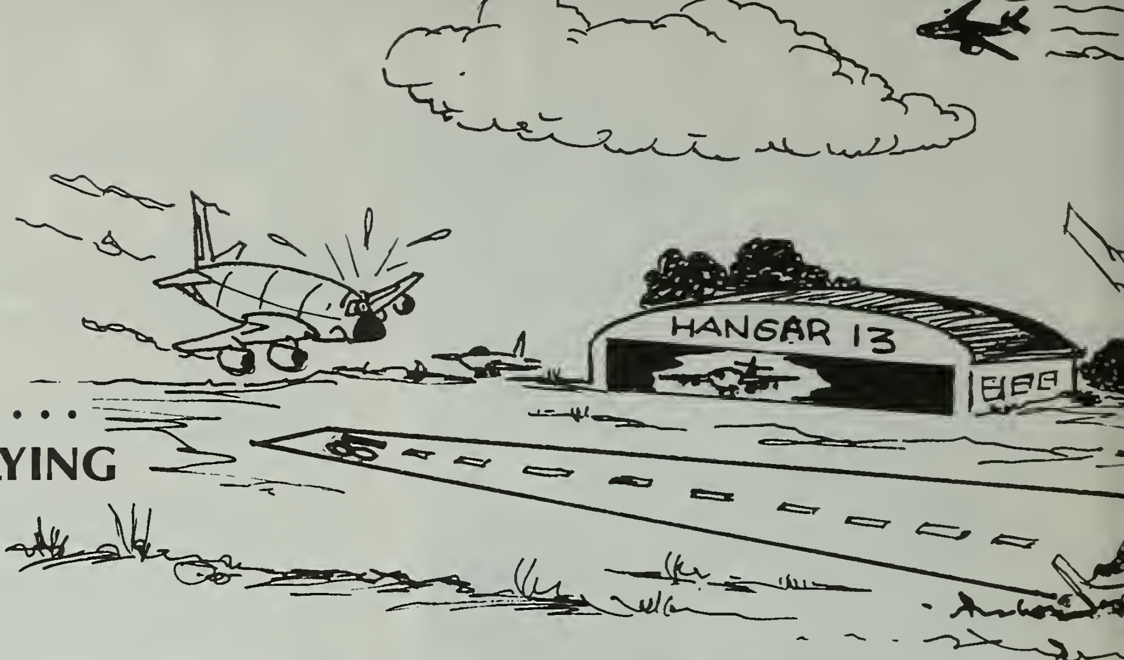
During a recent night maximum gross weight takeoff, immediately after gear retraction the pilot lost all of his cockpit lighting. Shortly thereafter the aircraft entered a weather front, further darkening an already dim cockpit. Unable to see his instruments, Capt Rogers transferred control of the aircraft to the copilot, Lt Kister, and grasped his flashlight. After flap retraction and established in the climb the pilot surveyed the cockpit and noticed that the left tip had not retracted. While executing the abnormal procedures checklist for the hung tip gear, Maj Bott, the IP, observed that several circuit breakers on the left load central had popped. As the IP checked and reset the popped circuit breakers, smoke began entering the crew compartment from the circuit breaker panel. The pilot directed the crew to go on 100 percent oxygen, while the IP began to pull the circuit breakers he had just reset. Pulling the circuit breakers caused the smoke to dissipate. To guard against further electrical failure, Capt Rogers elected to configure the aircraft for landing by lowering the gear and flaps. Shortly thereafter, other equipment problems started to occur in rapid-fire succession. True airspeed and mach indications were lost; both fire control radar became inoperative; the stabilizer trim became intermittent; and the navigator reported more than 45 degrees of heading error. The EW also noted major electrical disturbances in his equipment. At this point Capt Rogers aborted the mission and stayed in the local area to burn down fuel. Several hours later, the pilot performed an uneventful night heavyweight landing. The postflight inspection by maintenance revealed that a transformer behind the left load central had shorted causing the smoke and equipment failure. Sound decision making and poise under pressure enabled the crew to effectively handle a rapidly deteriorating situation. Their ability to deal quickly and calmly with numerous and simulatenous equipment malfunctions on climbout averted potentially serious problems, and led to the safe recovery of crew and aircraft.

Missile Crew

Crew R-031, 308 SMW, Little Rock AFB, is SAC's Missile Crew of the Month. Crew R-031 consists of Capt John Wright, MCCC; 1Lt Kevin E. Green, DMCCC; A1C Bruce L. Johnson, MSAT; and A1C Thomas C. Gavlick III, MFT. Recently crew R-031 was conducting an Olympic Play exercise, a test of launch critical components. During a missile verification the crew encountered a malfunction in the Stage I reservoir. Their troubleshooting enabled maintenance personnel to correct the problem with minimum off-alert time. Three days later crew R-031 was accomplishing daily shift verifications when the MSAT and MFT found a power supply in a high temperature condition with its fan not operating. The crew quickly shut down the malfunctioning power supply and thereby averted a possible fire. One week later crew R-031 supervised a potentially hazardous propellant transfer system flow operation. The crew discovered and corrected a silo elevator malfunction that jeopardized the success of the operation. The crew also identified a discrepancy in technical data governing the re-entry vehicle remate procedure. Realizing that a critical task had not been properly accomplished, the crew stopped the operation until maintenance personnel could correct the problem. The crew's actions averted serious damage to the missile and injury to personnel.

cont'd from page 21

MY LEGACY . . . HANGAR FLYING

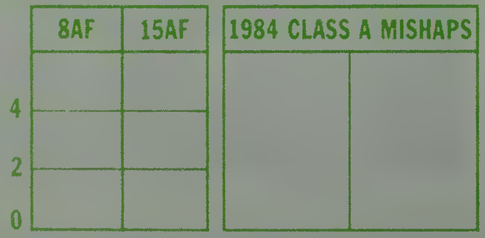


SAC'S FLYING SAFETY RECORD

CLASS A FLIGHT MISHAPS

YEAR	74	75	76	77	78	79	80	81	82	83	84
TOTAL MISHAPS	8	4	4	4	1	5	4	4	2	2	0
FLYING HOURS 100,000	5.1	4.2	3.9	3.7	3.6	3.6	3.4	3.5	3.5	3.0	1.4
FATALITIES	14	7	22	10	5	7	2	14	9	7	0
RATE	1.6	1.0	1.0	1.1	.28	1.4	1.2	1.2	.58	.65	0.0*

* ESTIMATED RATE BASED ON 310,000 FLYING HOURS



CLASS B	
MAY	0
1984	1

CLASS C	
MAY	17
1984	120

FLYING HOURS	
MAY	29,767
1984	143,194

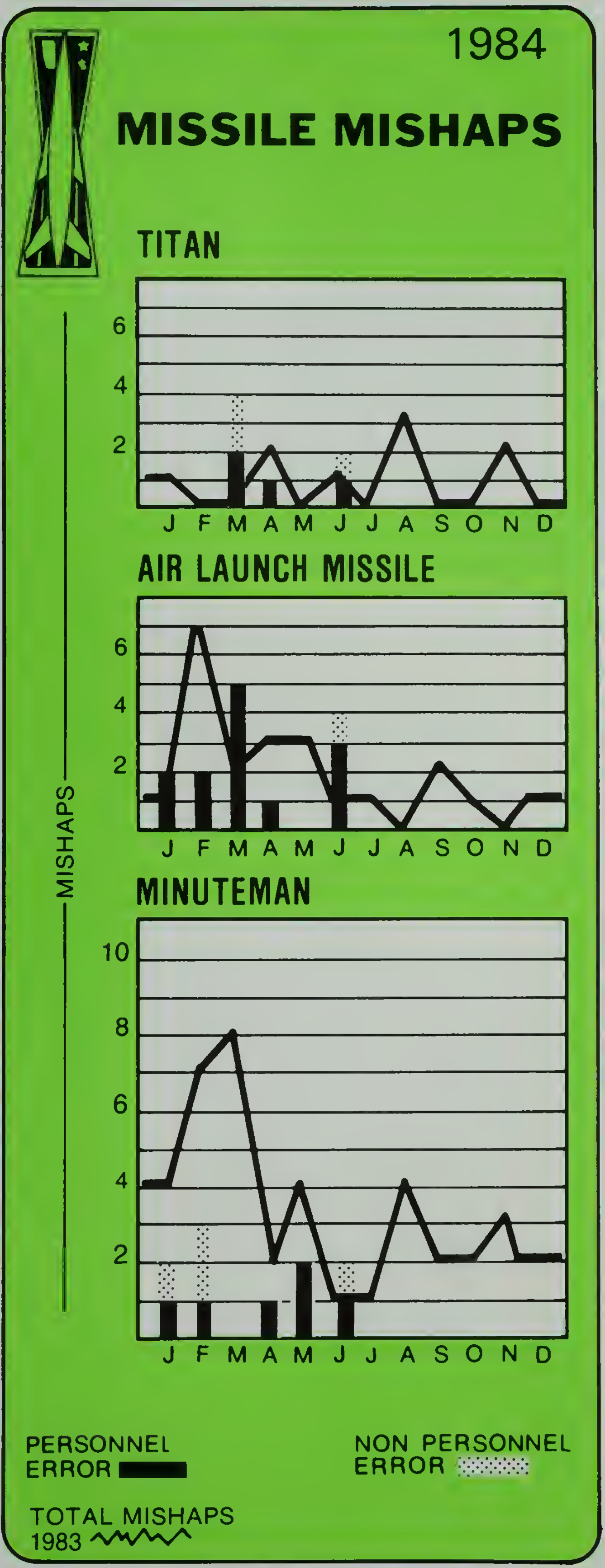
achieved under the pressure of an airborne emergency — you must take the knowledge airborne with you.

Not only must you take systems knowledge airborne with you, you must at all times know your own and your crew's limitations. Regulations and directives provide general guidelines and limitations; however, every airborne situation encountered is different.

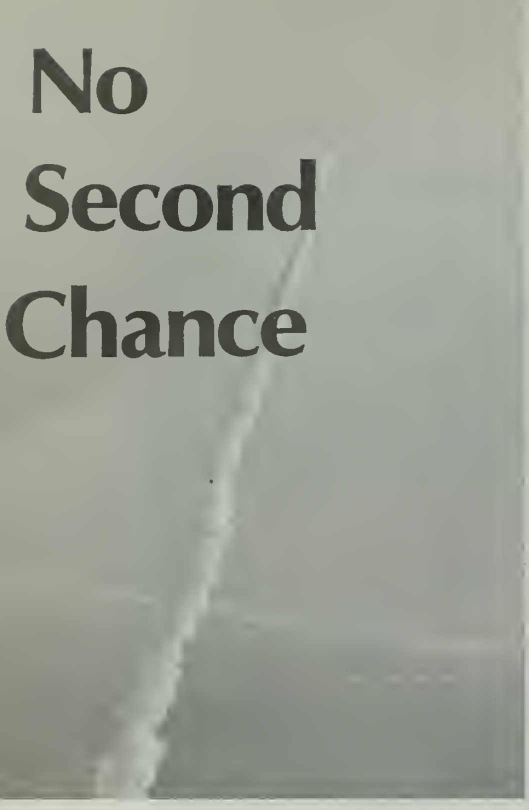
No two missions are ever exactly the same and that is what makes crew knowledge and judgment paramount. At a given point in a given airborne situation, you are the only individuals who have all the available facts to make the ultimate decision. HOTEL CONFERENCES, contractor and senior staff assistance will provide possible solutions; however, this could be that crucial point in time when every moment you have spent in the books will be called to the fore. This could also be the precise moment when a lesson learned from a Hangar Flying session leads to the right decision. Don't ever pass up a golden opportunity to get "really" smart before the fact!

It has often been said that "flying is hour upon hour of tedious boredom interspersed with fleeting moments of sheer panic." An innovative, viable, thought provoking Hangar Flying program offers unlimited possibilities to expand crew knowledge, stimulates the decision making process — and thus eliminates the "fleeting moments of sheer panic." As my legacy, I offer the challenge of Hangar Flying to each of you.

In the twilight of my 30 years on active duty, I find it extremely difficult to leave what I consider to have been a challenging and rewarding career. But I leave with the assurance that the SAC fleet is being run by true professionals. Dedicated staffs, aircrews, and maintenance personnel have always been the secret of SAC's success. This will never change. You belong to a truly elite fraternity, and don't ever let anyone try to convince you to the contrary. I wish each of you continued success and Godspeed. I only wish I could fly with you and participate in Hangar Flying sessions for another 30 years!



No Second Chance



THE CUTTING EDGE

Capt P. K. Simmons
4315 CCTS, Vandenberg AFB

Face it, the people manning the U.S. Strategic Offensive Triad comprise our first and only line of strategic defense. If they stumble or fall there is no second team waiting to take their place. The days when we as a nation could take our time to mobilize the economy, build war machines, and train the troops before going to war are long gone. Today weapon systems must be constantly ready every minute of every day.

A significant leg of the U.S. Strategic Offensive Triad is built on our intercontinental ballistic missiles (ICBM). The men and women of the Strategic Air Command who operate the ICBMs are called missileers. We must always be ready. We must be able to go from peacetime to a war footing in seconds. We do this knowing we are alone. There is no backup should we fail.

The readiness to fight on a moment's notice is the cornerstone of our defense. Hopefully, any potential enemy looking at our dedication and the deadly weapon systems we operate will pause and think many times before testing our resolve. This enemy, the theory of deterrence holds, would be prevented from attacking because of the fear of our retaliatory capability. Deterrence is the reason we maintain strategic nuclear weapon systems.

Unfortunately, deterrence rests on perception rather than on hard and fast measurable rules. We can't go to a defense contractor and ask for a hundred dollars worth of deterrence. We can't measure the abilities of our crewmembers in units of deterrence. It simply doesn't work that way. We must demonstrate our abilities through the systems we deploy and the quality of our crewmembers. The 1983 Scowcroft Commission Report on Strategic Forces said, "Deterrence is not, and cannot be, bluff. In order for deterrence to be effective we must not merely have weapons, we must be perceived to be able, and prepared, if necessary, to use them effectively against the key elements of Soviet power." The key point in this quotation to a missileer is . . . "perceived to be able and prepared . . ." This is why it's imperative we have a capable and professional crew force for our ICBMs.

It's imperative because the role we play as missileers is to deter nuclear war. It is essential we conduct ourselves in ways enhancing the "perception" of deterrence. The missile crewmember, the missile instructor and the missile evaluator must demonstrate a special kind of professionalism. In all other areas of life there are provisions for failure. The world will go on, the system will correct itself, and people will learn from their mistakes. However, this is not true in missile operations. Our profession deals with the survival of our country and possibly the world as we know it. Missileers get no second chance. We have to be right every time; every day. We have to be as near perfect as men can be. This is why our standards are so high and our tests and evaluations so strenuous.

At a university, 90 percent is outstanding. In missile operations, 90 percent is the bare minimum allowed. As every crewmember knows, a steady diet of low 90s draws unwanted attention from the leadership in the missile wing. In addition to written tests, we have gruelling three to six hour training sessions in the launch control center simulator; three to six hours under intense pressure with a short break at the three hour point. During evaluations, a single mistake can result in complete failure. Because of the importance of our mission, this rigorous training and evaluation never stops as long as a missileer remains combat ready. It's rough, but since there is no one to take our place we must be the best we can be. Through all of this we are sending a loud and clear message to any potential enemy — we are ready and able, make no mistake!

This message about our dedicated crew force must by necessity cross the line between on and off duty. The way we conduct ourselves off duty is as critical to the defense of this country as the way we behave when we are at work. The complainers who talk of nine to five jobs and believe what they do on their own time is their own business sends a message to our enemies we can't afford. We must not allow our off duty conduct to alter the perception that we are always ready and capable. There is no place on our team for missileers who abuse alcohol, who abuse drugs, who can't pay their bills or who engage in unprofessional relationships with their subordinates. What kind of combat organization would we be if we allowed people to engage in unprofessional behavior some of the time, but expect them to perform flawlessly when the chips are down? More importantly, how could we insure a potential enemy would be convinced we have the ability to carry out our mission?

If deterrence is made of the perception our enemies have of us, then we must insure we do nothing to tarnish our image. The first team in our country's defense gets **NO SECOND CHANCE.**

SAC SAFETY SCREEN

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW AFR 127-2/SS1.*

99 AREFS, Robins Crew E-162: FP Capt Roy A Cleland, CP 1Lt Linda K McCullers, NN Capt Garth D Everett, BO Sgt Billy W Shelley

912 AREFS, Robins Crew E-122: FP Capt Robert A Aboe, CP 1Lt Joseph E McKee, NN 1Lt Alan R Miller, BO Sgt James C Whitaker

97 AREFS, Blytheville Crew S-117: P Capt Paul J Vinci, CP 1Lt Darrell J Pratt, N 1Lt Roderick I Gregory, BO SSgt Paul W French

340 BMS, Blytheville Crew R-32: P Capt Richard C Ahlquist, CP 1Lt William M Reed, RN Capt Patrick S O'Heron, N 1Lt David B Mayer, EWO 2Lt David E Daniel, G SSgt David E Richarme

340 BMS, Blytheville Crew R-34: P Capt William C Hoferer, CP Capt Phillip A Mente, RN Capt Robert A Blouin, N 1Lt Rodger A Soard, EWO 2Lt Michael A Corum, G Sgt Charles R Harden

524 BMS, Wurtsmith Crew R-32: P Capt Russell B Kline, CP 2Lt Theodore K Pounda, RN Capt David A Gibson, N 1Lt Jeffrey T Fraher, EW 2Lt Thomas D Meyer, G SSgt Paul R Fultz

920 AREFS, Wurtsmith Crew E-121: P Capt Bruce Swezey, CP 1Lt Kenneth Henrickson, N 1Lt Steven Gensheimer, BO SSgt Robert Potts

11 AREFS, Altus Crew E-115: AC Maj Lewis M Hatch VI, CP 1Lt Robert W Bruton, N 1Lt Joseph V Stephens, BO Sgt David A Sprague

11 AREFS, Altus Crew R-133: AC Capt Brent J Falkenberg, CP 1Lt John R McDonald, N 1Lt Bruce W Regan, BO SSgt Thomas K Hervey

1 ACCS, Offutt Crew: AC Lt Col James M Smith, IP Maj Robert W Roshak, IN Maj John S Debaun, IFE SMSgt Terry M Waelti, IFT SMSgt Billie D Goodlett

4 ACCS, Ellsworth Crew R-104P: AC Capt Mayo J Elliott, CP 1Lt Randal B Jaquish, N Capt Herbert H Henderson, BO SSgt Phillip M Buckner, MCCC-A Capt Marvin J Riedel, DMCCC-A Capt Stephen H Holmgren, Radio Operator-1 SSgt Phillip Jones, Radio Operator-2 SSgt Craig Breiter, AFSAT Operator TSgt James Nelson, TWA Operator TSgt Robert Smith, Data Operator SSgt Daryl Kingsland

28 AREFS, Ellsworth Crew R-105: AC Capt John P Hoar, CP Capt James E Heberer Jr, N Capt John A Burd, BO SrA Ramiro Gomez Jr

77 BMS, Ellsworth Crew R-11: AC Capt Gary T Rogers, CP 1Lt Alexis P Kister, CP 1Lt Mark Hartney, RN Maj Gerald R Bessette, N 1Lt Ronald D Edwards, EWO 1Lt Jack D Shockley, G SrA Marin A Vines

5 BMW, Minot Crew R-105: P Capt Thomas J Narsden, CP 1Lt Jose D Rodriquez, N Capt Anthony C Bivona, BO SSgt Edward A Dunham

5 BMW, Minot Crew R-108: P Capt Peter H Liotta, CP 1Lt Timothy Robinson, N 1Lt James L Spanjers, BO SSgt Richard J Cohoon

128 ARG, Gen Mitchell Fld, Milwaukee, WI: IP Capt Victor R Stottlemeyer, P Capt John R Croft, N Lt Col Julian F Bates, IBO MSgt Gerald A Nelson

381 SMW, McConnell Crew R-014: MCCC 1Lt David L Bridges, DMCC 1Lt Jay D Aqua, MSAT A1C Gregory A Webb, MFT A1C Montgomery R Stanley

351 SMW, Whiteman Crew E-102: MCCC Capt Martin S Wiseman, DMCCC 2Lt Norman E Valentine

UNIVERSITY OF FLORIDA
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FLARE

HALL OF FAME

TACTICAL FLYING

OVER TWENTY-EIGHT YEARS

170 AREFG, [illegible]	Feb '56

OVER TWENTY-SIX YEARS

171 AREFW Greater Pittsburgh (PAANG)	Mar '58
157 AREFG Pease (NHANG)	Jun '58

OVER TWENTY-FIVE YEARS

940 AREFG Mather (USAFR)	May '59

OVER TWENTY-THREE YEARS

151 AREFG, Salt Lake City (UTANG)	Feb. '61

OVER TWENTY-TWO YEARS

134 AREFG, McGhee Tyson (TNANG)	Aug '61
11 SG, Fairford	Feb '62
340 AREFG Altus	Jun '62

OVER TWENTY-ONE YEARS

96 BMW Dyess	Aug '62

OVER NINETEEN YEARS

160 AREFG, Rickenbacker (OHANG)	Dec. '64
120 BMW Ma[illegible]	Jul '65

OVER SEVENTEEN YEARS

452 AREFW March (USAFR)	Sept '66
92 BMW Fairchild	Feb '67
55 SRW Offutt	Jul '67

OVER SIXTEEN YEARS

2 BMW Barksdale	Aug '67

OVER FIFTEEN YEARS

5 BMW Minot	Feb. '69

OVER FOURTEEN YEARS

42 BMW, Loring	Sept '69
141 AREFW, Fairchild (WAANG)	Oct '69
28 BMW, Ellsworth	May '70

OVER TWELVE YEARS

101 AREFW Bangor (MEANG)	Mar '72
306 SW, Mildenhall	Apr '72
416 BMW Griffiss	May '72

OVER ELEVEN YEARS

305 AREFW, Grissom	Aug '72
379 BMW, Wurtsmith	Apr '73

OVER 10 YEARS

931 AREFG, Grissom (USAFR).	Feb '74
384 AREFW, McConnell	Mar '74
189 AREFG, Little Rock (ARANG)	May '74

OVER NINE YEARS

43 SW, Andersen	Dec '74

OVER EIGHT YEARS

68 AREFG Seymour Johnson	Sep '75

OVER SEVEN YEARS

410 BMW, K I Sawyer	Apr '77
190 AREFG, Forbes (KSANG)	Apr '77
128 AREFG, Milwaukee (WIANG)	Jul '77

OVER FOUR YEARS

376 SW, Kadena	Aug '79

ICBM

OVER NINETEEN YEARS

1 STRAD Vandenberg	Sept '64

OVER FOURTEEN YEARS

341 SMW Malmstrom	Apr '70

OVER ELEVEN YEARS

321 SMW Grand Forks	Aug '72
390 SMW, Davis Monthan	Jul '73

OVER NINE YEARS

351 SMW, Whiteman	Oct '74
91 SMW, Minot	Nov '74

OVER FIVE YEARS

381 SMW, McConnell	Aug '78
44 SMW, Ellsworth	Nov '78

To gain listing in the Hall of Fame, a SAC or ARF unit must be Class A mishap-free for 48 months